



Original Research Article

Ebola viral disease prevention: Perception of secondary school students in two districts in Anambra State, Nigeria

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Ebola Viral disease (EVD) is caused by Ebola Virus. It is one of the Viral Haemorrhagic Fevers. It has a high fatality rate. Ebola virus belongs to the group of enveloped viruses that generally have high infection rate. This is because the lipid envelop helps them to enter easily into the host's cells. EVD can be prevented by good hygiene. This is because the lipid envelop covering of the virus can easily be destroyed by some chemical and physical agents. This study was carried out to assess the knowledge, attitude and practice regarding Ebola viral disease prevention measures among secondary school students in Nnewi North and Nnewi South Local Government Areas in Anambra State. This study was done during the last ebola outbreak in Nigeria. This was a cross sectional descriptive study carried out in 2 local government areas (Nnewi North and Nnewi South) in Anambra State, Nigeria. Multi stage sampling techniques was used. Four hundred questionnaires (200 per LGA) were included in the final analysis. A structured, pretested, self administered questionnaire was used in this study. Data was analysed using SPSS version 20. Out of the 200 respondents in Nnewi North, 73 (36.5%) were males and 127 (63.5%) were females. In Nnewi South, 104 (52.0%) were males while 96 (48.0%) were females. In Nnewi North, 190 (55.0%) have heard of EVD, but in Nnewi South 192 (96.0%) have heard of EVD. In Nnewi North 89.5% believed that drinking salt water would cure EVD, but in Nnewi South it was 78%. In Nnewi North 95.5% practice hand washing, while 96% practice same in Nnewi South. This study has demonstrated that almost all the students have heard of EVD. They equally had good knowledge of the preventive measures and practice them. However some misconceptions need to be corrected.

Key words: Knowledge, attitude, practice, ebola

INTRODUCTION

Ebola virus is a 19kb long, non-segmented, single stranded RNA virus, which is a member of the viral family filoviridae and the causative agent of the Ebola viral disease (Pringle et al., 2005). Ebola viral disease is an example of a viral hemorrhagic fever. Hence the alternative name Ebola hemorrhagic fever. Viral hemorrhagic fevers are a diverse group of animal and human illnesses that may be caused by five distinct families of RNA viruses; Arenaviridae, Filoviridae, Bunyaviridae, Flaviridae and Rhabdoviridae.

Other examples of viral hemorrhagic fevers are Crimean – Congo hemorrhagic fever, South American hemorrhagic fever, Dengue fever, Rift valley fever, Lassa fever and Yellow fever. All types of viral hemorrhagic fevers (VHF) are characterized by fever and bleeding disorders and all can progress to high fever, shock and death in many cases (Grard et al., 2012). Before outbreaks are confirmed in areas of weak surveillance, on the local or regional levels, Ebola is often mistaken for malaria, typhoid fever,

dysentery, influenza or various bacterial infections, which may be endemic to the region (Cohen, 2004). The Ebola virus causes an acute, serious illness, which is often fatal in humans. The average Ebola viral disease (EVD) case fatality rate is around 50%. However, case fatality rates have varied from 25% to 90% in past outbreaks. Ebola viral disease (EVD) first appeared in 1976 in two simultaneous outbreaks, one in Nzara (Sudan) and the other in Yambuku (Democratic Republic of Congo). The latter occurred in a village near the Ebola River, from which the disease takes its name. Five strains of the Ebola virus have been identified; Zaire, Bundibugya, Sudan, Reston and Tai forest. The Bundibugya, Zaire and Sudan Ebola Virus have been associated with large outbreaks in Africa. The virus that caused the 2014 West African outbreak belongs to the Zaire strain (WHO, 2015 and Kuhn et al., 2010). The most recent outbreak in West Africa (first cases noticed in March 2014) is the largest and most complex Ebola outbreak since the Ebola virus was first discovered in 1976 (CDC, 2015a) and CDC, 2015b). There have been more cases and deaths in this outbreak than all others combined. It has also spread between countries starting in Guinea, then spread across land borders to Sierra Leone, Liberia and Senegal and by air to Nigeria (WHO, 2015 and CDC, 2015b). The most severely affected countries, Guinea, Sierra Leone and Liberia have very weak health systems, lacking human and infrastructural resources, Liberia and Sierra Leone having only recently emerged from long periods of conflict and instability. EVD is highly contagious owing to the fact that Ebola virus belongs to the group of enveloped viruses that generally have high infection rate. This is because the lipid envelop helps them to enter easily into the host's cells. However, the good news is that sound hygienic lifestyle with effective use of antiseptic materials can go a long way to prevent contracting the infection. The simple reason to this is that the lipid envelop covering of the virus can easily be destroyed by some chemical and physical agents (e.g. some solvents, heat, low temperature, oxidizing agents like bleach, detergents, 70% alcohol solution).

In view of the mode of transmission, some risk factors have been recognized. These include lifestyle behaviours that can predispose (expose) someone to this virus: Handling bodily secretions of an infected individual e.g. blood, urine, saliva, sweat, seminal fluid, vaginal fluids, vomitus, tears, diarrhoeal stool and breast milk; Attending to a person sick with the virus; Visiting hospitals or homes where Ebola patients are hospitalized; Having handshakes with an infected individual; Exchange of personal belongings e.g. clothes, eating utensils, tooth brushes of someone infected with the Ebola virus; Coming in contact with sweat of infected person; Overcrowding; Handling of bush meat with bare hands/eating poorly cooked bush meat, etc. The incubation period, is 2 to 21 days, most often this is between 4 to 10 days (WHO, 2015; CDC 2015c and Goeijenbier et al., 2014). Humans are not infectious until they develop symptoms.

A study done in Sierra Leone reported high levels of awareness regarding EVD, but low comprehensive

knowledge on EVD. Also the preventive practices against EVD were low and there were a lot of misconceptions regarding EVD. Furthermore, there was very high level of stigma and discrimination towards EVD victims (CRS, 2015). This study was carried out to assess the knowledge, attitude and practice regarding Ebola viral disease prevention measures among secondary school students in Nnewi North and Nnewi South Local Government Areas in Anambra State. This study was done during the last Ebola outbreak in Nigeria.

METHODOLOGY

Nnewi North is a local government area (LGA) in Anambra state, South-east, Nigeria. Nnewi is the only town in Nnewi North LGA. There are four villages that make up the town: Otolo, Uruagu, Umudim and Nnewichi. Nnewi has a population of 391,227 according to the 2006 National population census (Wikipedia, 2015). Nnewi North LGA hosts 8 government owned and 48 privately owned secondary schools. Nnewi South is a Local Government Area in Anambra State, South-east Nigeria, with its headquarters at Ukpok. Other towns that make up the LGA include Ekwulumili, Amichi, Azigbo, Unubi, Ezinifite, Osumenyi, Utuh, Akwaihedi, Ogbodi and Ebenator. Its population is approximately 233,360 according to the 2006 population census (NPCN 2009). Nnewi South hosts 17 government owned and 22 privately owned secondary schools.

Study population: The study population were secondary school students in Nnewi North and South LGAs of Anambra State.

Study Design: This was a cross-sectional descriptive study.

Sample Size Determination: The minimum sample size was calculated using the formula below (Araoye, 2004);

$$N = \frac{z^2 pq}{d^2}$$

Where;

N = minimum sample size

Z = standard normal deviate at 95% confidence level (ie 1.96)

P = proportion of target population estimated to have characteristic of interest; taken as 50% (0.5)

q = 1 - p (ie 1 - 0.5)

d = margin of error, usually set at 5% (ie 0.05)

$$N = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = 384$$

Attrition

An anticipated 10% attrition rate was assumed. Hence 10% of the calculated minimum sample size was added:

$$\frac{10}{100} \times \frac{384}{1} = 38.4$$

The final calculated sample size was 384 + 38.4 = 422. So 422 questionnaires (211 per LGA) were distributed.

However only 400 questionnaires (200 per LGA), were included in data analysis.

Sampling Technique: Multi-stage sampling technique was used:

Stage I: Simple random sampling technique was used to select three schools from each local government giving a total of six schools.

Stage II: Stratified sampling was used in selecting the respondents for the study.

Study Instrument: A Structured, self-administered questionnaire was distributed to the respondents after obtaining verbal consent from them. The questionnaire was divided into four sections. Section A contained socio-demographic data, section B: knowledge of the respondents, section C: attitude and section D: preventive measures practiced.

Data Analysis: Data obtained was analyzed using SPSS version 20, percentages were worked out and finally data was represented in tables.

Ethical Consideration: Approval was obtained from the ethical review board of the Nnamdi Azikiwe University Teaching Hospital Nnewi. The consent of the School Principals was obtained as well as that of the individual respondents.

Inclusion Criteria: Eligible respondents who gave their consent.

Exclusion Criteria: Students that were not in the selected schools. Students in the selected schools but were sitting for the Senior School Certificate exam during the study. Students who did not give their consent. Students that were not randomly selected from stratified sub groups in the selected schools.

RESULTS

Table 1 shows the socio-demographic characteristics of the respondents. Out of the 200 respondents in Nnewi North, 73(36.5%) were males and 127(63.5%) were females. With regards to their family size, 45(22.5%) were 2 to 4 in the family, 103(51.5%) were 5 to 7 persons while 52(26.0%) were greater than 7 in the family. Out of the 200 respondents 197(98.5%) were Ibos, 2(1.0%) were Yorubas, none was Hausa, while 1(0.5%) was from other tribes in Nigeria. Most of the respondents 199(99.5%) were Christians, none of them was Islam or Traditionalist, while 1(0.5%) practice other forms of religion. With regards to the highest educational levels of the parents of the respondents, 6(3.0%) of fathers had no formal education, 20(10.0%) had primary education, 81(40.5%) had secondary education, 93(46.5%) had tertiary education. Also 2(1.0%) of the mothers had no formal education, 20(10.0%) had primary, 82(41.2%) had secondary education, 96(48.0%) had tertiary education. Thirteen (6.5%) of the fathers were farmers, 18(9.0%) were

professionals, 11(5.5%) were bankers, 109(54.5%) were traders, and 49(24.5%) of the fathers had other forms of occupation. Six (3.0%) of the mothers were farmers, 60(30.0%) were professionals, 6(3.0%) bankers, 114(57.0%) were traders and 14(7.0%) had other types of occupation.

Out of 200 respondents studies in Nnewi South, 104 (52.0%) were males while 96 (48.0%) were females. Thirty six (18.0%) had a family size of 2 to 4, 106 (53.0%) with a family size of 5 to 7, and 58 (29.0%) had a family size greater than 7. With regards to tribe/ethnicity, 195 (97.5%) were Ibos, 2(1.0%) were Yorubas, 1 (0.5%) was Hausa and 2 (1.0%) were from other tribes in Nigeria. Out of 200 respondents, 194 (97.0%) were Christians, 2 (1.0%) were Islam, and 4 (2.0%) practiced Traditional religion. With regards to the fathers' highest educational level, 4 (2.0%) had no formal education, 39 (19.5%) attended primary school, 91 (45.5%) had secondary education, 66(33.0%) had tertiary education. One (0.5%) of the mothers had no formal education, 28 (14.0%) went to primary school, 104 (52.0%) went to secondary school, while 67(33.5%) acquired tertiary education. With regards to the parents' occupation, majority of their fathers were traders 96 (48.0%), 36 (18.0%) were farmers, 29(14.5%) were professionals, 11 (5.5%) were bankers, 2 (1.0%) were hunters while 26 (13.0%) had other types of occupation, while 23 (11.5%) of the mothers were farmers, 44(22.0%) were professionals, 5 (2.5%) were bankers, 118 (39.0%) were traders, while 10 (5.0%) had other forms of occupation.

Table 2 shows the knowledge of the respondents regarding EVD. Table 2 shows that 190(55.0%) of the respondents in Nnewi North and 192(96.0%) in Nnewi South have heard of EVD, 27.0% in Nnewi North got their information from their parents, while in Nnewi South, 26.0% got the information from their parents, 45.0% (Nnewi North) and 57.0% (Nnewi South) through the radio, 61.0% (Nnewi North) and 47.5% (Nnewi South) through the television, 30% in Nnewi North and 30.5% in Nnewi South from the newspaper, 22.5% in Nnewi North and 21.0% in Nnewi South from the church, 26.5% (Nnewi North) and 19.0% (Nnewi South) from their schools, 27.5% and 15.0% of the respondents from Nnewi North and Nnewi South respectively got their information from their friends and 13.5% (Nnewi North) and 10.5% (Nnewi South) from the market place. On the other hand, majority of the respondents 72.5% and 77.0% from Nnewi North and Nnewi South respectively believed EVD existed in Nigeria. With regards to how EVD can be contracted or acquired, 88.5% in Nnewi North believed it can be acquired through eating bush meat while in Nnewi South 90.0% believed it can be acquired through eating bush meat; 88.0% (Nnewi North) and 83.0% (Nnewi South) through sexual intercourse; 84.0% (Nnewi North) and 77.0% (Nnewi South) through kissing; 93.5% in Nnewi North and 88.5% in Nnewi South through blood; 91.0% and 83.0% through sweat from Nnewi North and South respectively; 90.0% (Nnewi North) and 80.5% (Nnewi South) through

Table 1. Socio-demographic characteristics of the respondents

Variables	Nnewi North		Nnewi South		
	Frequency	Percentage %	Frequency	Percentage %	
Student's class	JSS1	36	18.0%	35	17.5%
	JSS2	32	16.0%	29	14.5%
	JSS3	44	22.0%	44	22.0%
	SSS1	50	25.0%	49	24.5%
	SSS2	38	19.0%	43	21.5%
	Total	200	100.0%	200	100.0%
Sex	Male	73	36.5%	104	52.0%
	Female	127	63.5%	96	48.0%
	Total	200	100.0%	200	100.0%
Family size	2-4	45	22.5%	36	18.0%
	5-7	103	51.5%	106	53.0%
	>7	52	26.0%	58	29.0%
	Total	200	100.0%	200	100.0%
Tribe/Ethnicity	Igbo	197	98.5%	195	97.5%
	Yoruba	2	1.0%	2	1.0%
	Hausa	0	0.0%	1	0.5%
	Others	1	0.5%	2	1.0%
	Total	200	100.0%	200	100.0%
Religion	Christian	199	99.5%	194	97.0%
	Islam	0	0.0%	2	1.0%
	Traditionalist	0	0.0%	2	2.0%
	Others	1	0.5%	0	0.0%
	Total	200	100.0%	200	100.0%
Father's Highest Educational Level	None	6	3.0%	4	2.0%
	Primary	20	10.0%	39	19.5%
	Secondary	81	40.5%	91	45.5%
	Tertiary	93	46.5%	66	33.0%
	Total	200	100.0%	200	100.0%
Mother's Highest Educational Level	None	2	1.0%	1	0.5%
	Primary	20	10.0%	28	14.0%
	Secondary	82	41.0%	104	52.0%
	Tertiary	96	48.0%	67	33.5%
	Total	200	100.0%	200	100.0%
Father's Occupation	Hunter	0	0.0%	2	1.0%
	Farmer	13	6.5%	36	18.0%
	Banker	11	5.5%	11	5.5%
	Trader	109	54.5%	96	48.0%
	Professional	18	9.0%	29	14.5%
	Others	49	24.5%	26	13.0%
	Total	200	100.0%	200	100.0%
Mother's Occupation	Farmer	6	3.0%	23	11.5%
	Banker	6	3.0%	5	2.5%
	Trader	114	57.0%	118	59.0%
	Professional	60	30.0%	44	22.0%
	Others	14	7.0%	10	5.0%
	Total	200	100.0%	200	100.0%

saliva; 84.5% (Nnewi North) and 74.0% (Nnewi South) through urine; 94.5% (Nnewi North) and 88.0% (Nnewi South) through sharing of personal belongings; 83.5% (Nnewi North) and 85.0% (Nnewi South) through body contact while 87.0% (Nnewi North) and 85.0% (Nnewi South) through attending burial ceremonies that require touching the body of the dead suspected to have died of Ebola. Sixty one (30.5%) of the respondents in Nnewi North and 45.0% in Nnewi South believed EVD can be transmitted

through mosquito bite while 52.0% from Nnewi North and 62.5% in Nnewi South believed it can be transmitted through the air.

Regarding how EVD can be prevented, 95.0% (Nnewi North) and 90.0% (Nnewi South) believed EVD can be prevented by avoiding consumption of bush meat, 95.0% (Nnewi North) and 90.5% (Nnewi South) by avoiding close body contact and contact with bodily fluids, 93.0% and 88.0% of the respondents from Nnewi North and South

Table 2. Knowledge of Ebola viral Disease

Variables	Nnewi North			Nnewi South		
		Frequency	Percentage %		Frequency	Percentage%
Have you heard of EVD before	Yes	190	95.0%	Yes	192	96.0%
	No	10	5.0%	No	8	4.0%
	Total	200	100.0%	Total	200	100.0%
Source of knowledge						
Parents	Yes	54	27.0%	Yes	52	26.0%
	No	146	73.0%	No	148	74.0%
	Total	200	100.0%	Total	200	100.0%
Radio	Yes	90	45.0%	Yes	114	57.0%
	No	110	55.0%	No	86	43.0%
	Total	200	100.0%	Total	200	100.0%
Television	Yes	122	61.0%	Yes	95	47.5%
	No	78	39.0%	No	105	52.5%
	Total	200	100.0%	Total	200	100.0%
Newspaper	Yes	60	30.0%	Yes	61	30.5%
	No	140	70.0%	No	139	69.5%
	Total	200	100.0%	Total	200	100.0%
Church	Yes	45	22.5%	Yes	42	21.0%
	No	155	77.5%	No	158	79.0%
	Total	200	100.0%	Total	200	100.0%
School	Yes	53	26.5%	Yes	38	19.0%
	No	147	73.5%	No	162	81.0%
	Total	200	100.0%	Total	200	100.0%
Friends	Yes	55	27.5%	Yes	30	15.0%
	No	145	72.5%	No	170	85.0%
	Total	200	100.0%	Total	200	100.0%
Market Place	Yes	27	13.5%	Yes	21	10.5%
	No	173	86.5%	No	179	89.5%
	Total	200	100.0%	Total	200	100.0%
Do you believe EVD existed in Nigeria	Yes	145	72.5%	Yes	154	77.0%
	No	55	27.5%	No	46	23.0%
	Total	200	100.0%	Total	200	100.0%
How can it be contracted/acquired						
Eating bush meat	Yes	177	88.5%	Yes	180	90.0%
	No	23	11.5%	No	20	10.0%
	Total	200	100.0%	Total	200	100.0%
Sexual intercourse	Yes	170	85.0%	Yes	166	83.0%
	No	30	15.0%	No	34	17.0%
	Total	200	100.0%	Total	200	100.0%
Kissing	Yes	168	84.0%	Yes	154	77.0%
	No	32	16.0%	No	46	23.0%
	Total	200	100.0%	Total	200	100.0%
Contact with the person's blood	Yes	187	93.5%	Yes	177	88.5%
	No	13	6.5%	No	23	11.5%
	Total	200	100.0%	Total	200	100.0%
Contact with the person's sweat	Yes	182	91.0%	Yes	166	83.5%
	No	18	9.0%	No	34	17.0%
	Total	200	100.0%	Total	200	100.0%
Contact with the person's saliva	Yes	180	90.0%	Yes	161	80.5%
	No	20	10.0%	No	39	19.5%
	Total	200	100.0%	Total	200	100.0%
Contact with the person's urine	Yes	169	84.5%	Yes	148	74.0%
	No	31	15.5%	No	52	26.0%
	Total	200	100.0%	Total	200	100.0%

Table 2 Cont.

Sharing personal belonging	Yes	189	94.5%	Yes	176	88.0%	
	No	11	5.5%	No	24	12.0%	
	Total	200	100.0%	Total	200	100.0%	
Having body contact with the person	Yes	167	83.5%	Yes	170	85.0%	
	No	33	16.5%	No	30	15.0%	
	Total	200	100.0%	Total	200	100.0%	
Attending burial ceremonies that requires touching the body of the dead suspected to have died of Ebola	Yes	174	87.0%	Yes	170	85.0%	
	No	26	13.0%	No	30	15.0%	
	Total	200	100.0%	Total	200	100.0%	
Can EVD be transmitted through mosquito bite ?	Yes	61	30.5%	Yes	90	45.0%	
	No	139	69.5%	No	110	55.5%	
	Total	200	100.0%	Total	200	100.0%	
Can EVD be transmitted through the air ?	Yes	104	52.0%	Yes	139	69.5%	
	No	96	48.0%	No	61	30.5%	
	Total	200	100.0%	Total	200	100.0%	
How can EVD be avoided ?							
	Avoid consumption of bush meat	Yes	190	95.0%	Yes	181	90.5%
		No	10	5.0%	No	19	9.5%
Total		200	100.0%	Total	200	100.0%	
Avoid close body contact and contact with bodily fluids	Yes	190	95.0%	Yes	180	90.0%	
	No	10	5.0%	No	20	10.0%	
	Total	200	100.0%	Total	200	100.0%	
Use of hand glove	Yes	186	93.0%	Yes	176	88.0%	
	No	14	7.0%	No	24	12.0%	
	Total	200	100.0%	Total	200	100.0%	
Hand washing	Yes	190	95.0%	Yes	174	87.0%	
	No	10	5.0%	No	26	13.0%	
	Total	200	100.0%	Total	200	100.0%	
Use hand sanitizer	Yes	189	94.5%	Yes	174	87.0%	
	No	11	5.5%	No	26	13.0%	
	Total	200	100.0%	Total	200	100.0%	
Avoid burials that require touching the body of the dead	Yes	91	45.5%	Yes	120	60.0%	
	No	109	54.5%	No	80	40.0%	
	Total	200	100.0%	Total	200	100.0%	
What are the symptoms of Ebola							
	Fever	Yes	87	43.5%	Yes	86	43.0%
		No	113	56.5%	No	114	57.0%
Total		200	100.0%	Total	200	100.0%	
Headache	Yes	61	30.5%	Yes	71	35.5%	
	No	139	69.5%	No	129	64.5%	
	Total	200	100.0%	Total	200	100.0%	
Weakness	Yes	83	41.5%	Yes	75	37.5%	
	No	117	58.5%	No	125	62.5%	
	Total	200	100.0%	Total	200	100.0%	
Muscle pain	Yes	43	21.5%	Yes	29	14.5%	
	No	157	78.5%	No	171	85.5%	
	Total	200	100.0%	Total	200	100.0%	
Vomiting	Yes	96	48.0%	Yes	76	38.0%	
	No	104	52.0%	No	124	62.0%	
	Total	200	100.0%	Total	200	100.0%	
Diarrhoea	Yes	46	23.0%	Yes	31	15.5%	
	No	154	77.0%	No	169	84.5%	
	Total	200	100.0%	Total	200	100.0%	
Rash	Yes	61	30.5%	Yes	49	24.5%	
	No	139	69.5%	No	151	75.5%	
	Total	200	100.0%	Total	200	100.0%	
Bleeding from the nose, mouth or anus	Yes	121	60.5%	Yes	92	46.0%	
	No	79	39.5%	No	108	54.0%	
	Total	200	100.0%	Total	200	100.0%	
Can EVD be treated	Yes	143	71.5%	Yes	131	65.5%	
	No	57	28.5%	No	69	34.5%	
	Total	200	100.0%	Total	200	100.0%	

respectively by the use of hand gloves, 95.0% (Nnewi North) and 87.0% (Nnewi South) by hand washing, 94.5% (Nnewi North) and 87.0% (Nnewi South) by use of hand sanitizers while 45.5% from Nnewi North and 40.0% from Nnewi South by avoiding burial ceremonies. With regards to knowledge of symptoms of EVD, majority of the respondents have good knowledge of the symptoms; fever 45.5% (Nnewi North) and 43.0% (Nnewi South), weakness 41.5% and 35.5% Nnewi North and South respectively, muscle pain 21.5% and 14.5% respectively, vomiting 48.0% (Nnewi North) and 38.0% (Nnewi South), diarrhoea 23.0% (Nnewi North) and 15.5% (Nnewi South), rashes 30.5% and 24.5% respectively, and bleeding from the nose, mouth or anus 60.5% and 46.0% from Nnewi North and South respectively. Concerning treatment, 71.5% and 65.5% of the respondents from Nnewi North and South respectively believed EVD can be treated.

Table 3 shows the attitude of the respondents towards prevention of EVD. Out of 200 respondents in Nnewi North, 9.5% would keep it secret if he or she had any of the symptoms of EVD, while out of the 200 respondents in Nnewi South, 18.5% would keep it secret. In Nnewi North 37.0% of the respondents would seat close to a person who recovered from EVD, while only 32.0% would do same in Nnewi South.

Table 4 shows practices of the respondents towards prevention of EVD. In Nnewi North, 95.5% of the respondents and in Nnewi South 96.0% practice hand washing with soap and water. Ninety one percent of the respondents in Nnewi North agreed the school provided facilities for hand washing while in Nnewi South, 93.0% admitted the school provided them with facilities for hand washing.

DISCUSSION

On the knowledge of Ebola viral disease, the study shows that nearly all the respondents; 190 (95.0%) in Nnewi North and 192 (96.0%) in Nnewi South have heard of Ebola viral disease. Also, majority of the respondents, 145 (72.5%) from Nnewi North and 154 (77.0%) from Nnewi South believed Ebola existed in Nigeria. This is similar to the findings of studies done in Sierra Leone (Chan, 2014 and WHO, 2015) which reported that nearly every Sierra Leonean has heard about Ebola. With regards to the knowledge of preventive measures against the disease, 190 (95.0%) respondents from Nnewi North and 180 (90.5%) respondents from Nnewi South agreed EVD can be prevented by avoiding close body contacts and contact with bodily fluids. Such level of knowledge of prevention of EVD by avoiding contact with cases was also reported in Sierra Leone. However, in contrast to the situation in Sierra Leone where 85% of the respondents agreed with the statement that one can protect oneself by avoiding funeral or burial rituals that require handling the body of someone who died of Ebola, only 45.5% (Nnewi North) and 40% (Nnewi

South) agreed with the statement in this study. On the misconception about transmission of Ebola viral disease, some respondents (30.5% in Nnewi North and 40.0% in Nnewi South) agreed EVD can be transmitted through mosquito bite. This shows that among the respondents some are yet to get the appropriate knowledge about EVD transmission.

On the attitude towards prevention of EVD, only very few of the respondents 9.5% (Nnewi North) and 18.5% (Nnewi South) would keep it secret if he or she had any of the symptoms of EVD, while 59.5% of respondents in Nnewi North and 63.5% in Nnewi South would not allow someone who had recovered from the disease into their homes. Also in Nnewi North and Nnewi South respectively, 37.0% and 32.0% of the respondents would seat close to a person who recovered from the disease. Furthermore, none of the respondents in Nnewi North would treat an EVD case at home, while 1.5% of the respondents in Nnewi South would treat an EVD case at home. In Guinea 33% of the respondents claimed they would treat the symptoms at home for at least 3-4 weeks⁶. Among the 200 respondents in Nnewi North 8.5% believed that bathing with salt water could prevent EVD but in Nnewi South 20.5% believed bathing with salt water could prevent or cure Ebola disease. A higher percentage (42%) was reported in Sierra Leone (Chan, 2014). Bathing with salt water and drinking of salt water was wrongly propagated in Nigeria during the ebola outbreak. There were even cases of death from drinking salt water in Nigeria during the ebola outbreak. A great number of the respondents 95.5% and 96.0% from Nnewi North and Nnewi South respectively practice handwashing with soap and water. This is higher than the rate in Sierra Leone where 70% of respondents practice handwashing with soap and water in order to help prevent EV (Chan, 2014) These high levels of practice of handwashing could be explained by the massive promotion of hand washing by the government and agencies during the outbreak of EVD in the country, which was also the period this study was conducted.

In conclusion, this study has demonstrated that almost all the students have heard of Ebola viral disease and knew it existed in Nigeria. A good number of them knew various modes of transmission and spread of the disease. They equally had good knowledge of the preventive measures and practice them. However a good number of them still believe dead bodies could not be a source of the infection; that EVD can be transmitted through mosquito bites and that bathing with salt water would prevent Ebola.

Based on these findings we recommend continued awareness campaigns on EVD and its preventive measures. We also recommend continuous periodic training of teachers on EVD so that they will transfer the knowledge to the students.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of the paper.

Table 3. Attitude of respondents towards prevention of EVD

Variables	Nnewi North			Nnewi South			
		Frequency	Percentage %		Frequency	Percentage %	
If you had any of the symptom above, would you keep it secret?	Yes	19	9.5%	Yes	37	18.5%	
	No	181	90.5%	No	163	81.5%	
	Total	200	100.0%	Total	200	100.0%	
Would you allow someone who had recovered from the disease to sit beside you on the seat in the class?	Yes	74	37.0%	Yes	64	32.0%	
	No	126	63.0%	No	136	68.0%	
	Total	200	100.0%	Total	200	100.0%	
Would you allow someone who had recovered from the disease into your house?	Yes	81	40.5%	Yes	73	36.5%	
	No	119	59.5%	No	127	63.5%	
	Total	200	100.0%	Total	200	100.0%	
If somebody you know had the disease, where would you direct the person for treatment?							
	Prayer house	Yes	29	14.5%	Yes	20	10.0%
		No	171	85.5%	No	180	90.0%
		Total	200	100.0%	Total	200	100.0%
Treat the person at home	Yes	0	0.0%	Yes	3	1.5%	
	No	200	100.0%	No	197	98.5%	
	Total	200	100.0%	Total	200	100.0%	
Chemist	Yes	0	0.0%	Yes	3	1.5%	
	No	200	100.0%	No	197	98.5%	
	Total	200	100.0%	Total	200	100.0%	
Traditional doctor	Yes	5	2.5%	Yes	5	2.5%	
	No	195	97.5%	No	195	97.5%	
	Total	200	100.0%	Total	200	100.0%	
Hospital	Yes	167	83.5%	Yes	166	83.0%	
	No	33	16.5%	No	34	17.0%	
	Total	200	100.0%	Total	200	100.0%	
Do you believe drinking salt water could prevent or cure EVD disease?	Yes	21	10.5%	Yes	44	22.0%	
	No	179	89.5%	No	156	78.0%	
	Total	200	100.0%	Total	200	100.0%	
Do you believe bathing salt water could prevent or cure Ebola disease?	Yes	17	8.5%	Yes	41	20.5%	
	No	183	91.5%	No	159	79.5%	
	Total	200	100.0%	Total	200	100.0%	
Do you usually set traps in the bush to catch bush meat?	Yes	49	24.5%	Yes	64	32.0%	
	No	151	75.5%	No	136	68.0%	
	Total	200	100.0%	Total	200	100.0%	
If yes, do you still set traps after you heard the news about Ebola?	Yes	26	13.0%	Yes	31	15.5%	
	No	174	87.0%	No	169	84.5%	
	Total	200	100.0%	Total	200	100.0%	
Do you like eating bush meat?	Yes	100	50.0%	Yes	106	53.0%	
	No	100	50.0%	No	94	47.0%	
	Total	200	100.0%	Total	200	100.0%	
If yes, do you still eat bush meat after you heard the news about Ebola?	Yes	30	15.0%	Yes	31	15.5%	
	No	170	85.0%	No	169	84.5%	
	Total	200	100.0%	Total	200	100.0%	
Do you still shake hands with your friends after you heard the Ebola news?	Yes	76	38.0%	Yes	36	18.0%	
	No	124	62.0%	No	164	82.0%	
	Total	200	100.0%	Total	200	100.0%	

Table 4. Practices towards prevention of EVD

Practices towards prevention of EVD	Nnewi North			Nnewi South		
		Frequency	Percentage %		Frequency	Percentage %
Do you practice hand washing with water and soap?	Yes	191	95.5%	Yes	192	96.0%
	No	9	4.5%	No	8	4.0%
	Total	200	100.0%	Total	200	100.0%
Do the school provide the students with facilities for hand washing?	Yes	182	91.0%	Yes	186	93.0%
	No	18	9.0%	No	14	7.0%

Table 4. Cont.

	Total	200	100.0%	Total	200	100.0%
Did you stop attending burial ceremonies?	Yes	71	35.5%	Yes	79	39.5%
	No	129	64.5%	No	121	60.5%
	Total	200	100.0%	Total	200	100.0%
Do you use hand sanitizer?	Yes	163	81.5%	Yes	161	80.5%
	No	37	18.5%	No	39	19.5%
	Total	200	100.0%	Total	200	100.0%
Do you bath with salt water	Yes	45	22.5%	Yes	58	29.0%
	No	155	77.5%	No	142	71.0%
	Total	200	100.0%	Total	200	100.0%
Do you drink salt water?	Yes	29	14.5%	Yes	56	28.0%
	No	171	85.5%	No	144	72.0%
	Total	200	100.0%	Total	200	100.0%
Do you use nose mask to prevent Ebola?	Yes	64	32.0%	Yes	91	45.5%
	No	136	68.0%	No	109	54.5%
	Total	200	100.0%	Total	200	100.0%
Do you wear hand gloves to prevent Ebola?	Yes	101	50.5%	Yes	136	68.0
	No	99	49.5%	No	64	32.0%
	Total	200	100.0%	Total	200	100.0%

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